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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/759,325	01/16/2004	John E. Paff	MSFT-2912/305777.2	8370

41505   7590   04/24/2008
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EXAMINER
LEE, CHUN KUAN

ART UNIT	PAPER NUMBER
2181	

MAIL DATE	DELIVERY MODE
04/24/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>12 March 2008</u>.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-10 and 13-32</u> is/are pending in the application.

    4a) Of the above claim(s) <u>4-9,15,21,22 and 24-29</u> is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-3,10,13,14,16-20,23 and 30-32</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>16 January 2004</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

CONTINUED EXAMINATION UNDER 37 CFR 1.114

1.   A request for continued examination under 37 CFR 1.114, including the fee set

forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this

application is eligible for continued examination under 37 CFR 1.114, and the fee set

forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action

has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on

03/12/2008 has been entered.

RESPONSE TO ARGUMENTS

2.   Applicant's arguments with respect to claims 1-3, 10, 13-14, 16-20, 23 and 30-32

have been considered but are moot in view of the new ground(s) of rejection. Currently,

claims 4-9, 15, 21-22 and 24-29 are withdrawn, claims 11-12 are canceled claims 1-3,

10, 13-14, 16-20, 23 and 30-32 are pending for examination.

I. REJECTIONS BASED ON 35 U.S.C. 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly
claiming the subject matter which the applicant regards as his invention.

3.   Claim 13 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite

for failing to particularly point out and distinctly claim the subject matter which applicant

regards as the invention.

Claim 13 recites the limitation "said data" in line 2. There is insufficient

antecedent basis for this limitation in the claim.

As per claim 13, it is not fully clear which "data" the applicant is referring to, the

examiner will assume the claimed limitation of "said datum" for the current examination.

II. REJECTIONS BASED ON PRIOR ART

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

4.   Claims 1-3, 17-19, 30 and 32 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Hocker et al. (US Patent 5,930,368) in view of Elliott et al. (US Pub.:

2004/0184615).

5.   As per claim 1, Elliott teaches a method of communicating between a first

component (Fig. 1, ref. 120) and a second component (Fig. 1, ref. 125), the first

component and second component being communicatively connected to each other

through a bus (Fig. 1, ref. 110) that is accessible to components other than the first

component and the second component (Fig. 1; [0004] and [0024]-[0028]), the method

comprising:

establishing a light-based communication connection (e.g. optical link) (Fig. 1, ref. 115) between the first component (Fig. 1, ref. 120) and the second component (Fig. 1, ref. 125), wherein the light-based communication connection does not transmit information (e.g. encryption key information) through the bus (Fig. 1 and [0024]-[0028]);

transmitting a datum (e.g. encryption key) between the first component and the second component using said light-based communication connection (Fig. 1 and [0024]-[0028]).

Elliott does not expressly teach the method wherein the light-based communication connection ensures a defined positional relationship between the first and second components.

Hocker teaches a method of communicating a light-based communication connection ensures a defined positional relationship (Fig. 2, ref. 32 and Fig. 6) between a first component (Fig. 1, ref. 14) and a second component (Fig. 1, ref. 10) (Fig. 5a-5b; Fig. 6; col. 5, l. 32 to col. 6, l. 20 and col. 6, l. 48 to col. 7, l. 28).

It would have been obvious for one of ordinary skill in this art, at the time of invention was made to include Hocker's defined positional relationship into Elliott's light-based communication connection for the benefit of increasing the security of the connection by reducing the probability of intercepting the encryption key as the components must be within a required range (Hocker, col. 5, ll. 44-51 and col. 8, ll. 7-43) to obtain the invention as specified in claim 1.

6.   As per claim 2, <u>Elliott</u> and <u>Hocker</u> teach all the limitations of claim 1 as discussed

above, where <u>Hocker</u> further teaches the method comprising wherein the second

component is associated with an identifier (e.g. identifying information) of the second

component, and said datum comprises said identifier (<u>Hocker</u>, col. 5, l. 32 to col. 6, l. 20

and col. 8, ll. 7-43).

7.   As per claim 3, <u>Elliott</u> and <u>Hocker</u> teach all the limitations of claim 2 as discussed

above, where both further teach the method comprising wherein said identifier

comprises a cryptographic key associated with the second component (<u>Elliott</u>, [0024]-

[0028] and <u>Hocker</u>, col. 8, ll. 7-43).

8.   As per claim 17, <u>Elliott</u> teaches a computer-readable storage medium encoded

with computer-executable instructions to perform a method wherein a first component

(Fig. 1, ref. 120) and a second component (Fig. 1, ref. 125) being communicatively

connected to each other by a bus (Fig. 1, ref. 110) that is accessible to sources remote

from the first component and the second component (Fig. 1; [0004]; [0024]-[0028] and

[0044]-[0045]), the method comprising:

        sending a first datum from the first component to the second component (Fig. 1;

Fig. 7-8; [0024]-[0028] and [0044]-[0045]), as the encryption key is transferred to the

second component; and

        receiving a second datum at the first component from the second component, the

second datum being communicated from the second component to the first component

through a light-based secondary communication channel (Fig. 1, ref. 115) and without

use of the bus (Fig. 1, ref. 110) (Fig. 1; Fig. 7-8; [0024]-[0028] and [0044]-[0045]), as an

acknowledgement is received from the second component;

Elliott does not expressly teach the method comprising verifying that a first

component is within a first positional relationship to a second component through

determining that the second component satisfies the first position relationship based on

receipt of the second datum.

Hocker teaches a system and a method comprising verifying that a first

component (Fig. 1, ref. 14) is within a first positional relationship (Fig. 2, ref. 32 and Fig.

6) to a second component (Fig. 1, ref. 10) through determining that the second

component satisfies the first position relationship based on receipt of a (second) datum

(Fig. 5a-5b; Fig. 6-7; col. 5, l. 32 to col. 6, l. 20; col. 6, l. 48 to col. 7, l. 28 and col. 8, ll.

7-43)

It would have been obvious for one of ordinary skill in this art, at the time of

invention was made to include Hocker's defined positional relationship into Elliott's light-

based communication connection for the benefit of increasing the security of the

connection by reducing the probability of intercepting the encryption key as the

components must be within a required range (Hocker, col. 5, ll. 44-51 and col. 8, ll. 7-

43) to obtain the invention as specified in claim 17.

9.   As per claim 18, Elliott and Hocker teach all the limitations of claim 17 as

discussed above, wherein both further teach the computer-readable storage medium

having the method comprising wherein said first datum comprises a cryptographic key associated with the first component (Elliott, [0024]-[0028] and Hocker, col. 8, ll. 7-43).

10.   As per claim 19, Elliott and Hocker teach all the limitations of claim 17 as discussed above, wherein Hocker further teaches the computer-readable storage medium having the method comprising wherein the first positional relationship comprises the first component and the second component being within a level of proximity to each other (Hocker, Fig. 2, ref. 32; Fig 5a-5b and Fig. 6).

11.   As per claim 30, Elliott and Hocker teach all the limitations of claim 1 as discussed above, wherein both further teach the method comprising wherein the light-based communication connection comprises an infrared communication connection (Elliott, [0026] and Hocker, col. 6, ll. 6-20; col. 7, ll. 18-28).

12.   As per claim 32, Elliott and Hocker teach all the limitations of claim 17 as discussed above, wherein both further teach the computer-readable storage medium having the method comprising wherein the light-based secondary communication channel comprise an infrared communication connection (Elliott, [0026] and Hocker, col. 6, ll. 6-20; col. 7, ll. 18-28).

13.   Claims 10, 13-14, 16, 20 and 31 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Hocker et al. (US Patent 5,930,368) in view of Elliott et al. (US Pub.:

2004/0184615) and Tom's Hardware.

14.   As per claim 10, Elliott teaches a system comprising:

        a first component (Fig. 1, ref. 120);

        a second component (Fig. 1, ref. 125) communicatively connected to said first

component through a first communication channel that includes a bus (Fig. 1, ref. 110),

said bus being accessible to components other than said first component and said

second component (Fig. 1; [0004] and [0024]-[0028]); and

        a second communication channel (Fig. 1, ref. 115) that communicatively

connects said first component with said second component using light-based

communications (e.g. optical link), said second communication channel enabling the

transmission of a datum (e.g. encryption key) in at least one direction between said first

component and said second component without exposing said datum to said bus (Fig. 1

and [0024]-[0028]),

        wherein the first component comprises a host computer (Fig. 1, ref. 130a-130c),

        and wherein the second light based communication channel enables

transmission of said datum (Fig. 1 and [0024]-[0028]).

        Elliott does not expressly teach the system comprising: ensuring a defined

positional relationship between the first and second components; wherein the first

component comprises an electronic device ..., and the second component comprises a

plug-in board ..., and ... transmission of said datum ... only when ... establishing a

defined positional orientation between the first and second components.

Hocker teaches a system comprising:

ensuring a defined positional relationship (Fig. 2, ref. 32 and Fig. 6) between a

first component (Fig. 1, ref. 14) and a second component (Fig. 1, ref. 10);

wherein the first component comprises an electronic device (Fig. 5a, ref. 83; Fig.

5b, ref. 83, 90 and Fig. 6, ref. 83, 90) mounted on a computer system (Fig. 5a, ref. 14"),

and the second component comprises that plugs into an I/O slot (Fig. 5a, ref. 83; Fig.

5b, ref. 83 and Fig. 6, ref. 83) located on the computer system (Fig. 5a, ref. 14"),

and a second light based communication channel enables transmission of a

datum (e.g. encryption key) between said first component and said second component

only when said second component is plugged into the I/O slot (Fig. 6) thereby

establishing a defined positional orientation between the first and second components

(Fig. 5a-5b; Fig. 6; col. 5, l. 32 to col. 6, l. 20; col. 6, l. 48 to col. 7, l. 28 and col. 8, ll. 7-

43).

It would have been obvious for one of ordinary skill in this art, at the time of

invention was made to include Hocker's defined positional relationship into Elliott's light-

based communication connection for the benefit of increasing the security of the

connection by reducing the probability of intercepting the encryption key as the

components must be within a required range (Hocker, col. 5, ll. 44-51 and col. 8, ll. 7-

43) to obtain the invention as specified in claim 10.

Elliott and Hocker do not expressly teach the system comprising a motherboard and a plug-in board that plugs into an I/O slot located on the computer motherboard

Tom's Hardware teaches a system comprising a motherboard and a plug-in board (e.g. graphics card) that plugs into an I/O slot (e.g. AGP slot, PCI slot, ACR slot) located on the computer motherboard (p. 4; p. 6 and p. 14).

It would have been obvious for one of ordinary skill in this art, at the time of invention was made to include Tom's Hardware's motherboard and plug-in board into Elliott and Hocker's computer system not only because it is well known to one skilled in the art that the computer system is constructed utilizing the motherboard and plug-in board; additionally inclusion of the light based communication channel between the motherboard and plug-in board would ensure the data transferred are secured (Elliott, [0004] and Hocker, col. 5, ll. 44-51 and col. 8, ll. 7-43) to obtain the invention as specified in claim 10.

15.   As per claim 13, Elliott, Hocker and Tom's Hardware teach all the limitations of claim 10 as discussed above, where Hocker further teaches the system comprising wherein said second component is associated with an identifier (e.g. identification information), and wherein said datum comprises said identifier, said datum being transmitted from said second component to said first component over said second communication channel (Hocker, col. 5, l. 32 to col. 6, l. 20 and col. 8, ll. 7-43).

16.   As per claim 14, Elliott, Hocker and Tom's Hardware teach all the limitations of

claim 13 as discussed above, where Elliott and Hocker further teach the system

comprising wherein said identifier comprises a cryptographic key associated with said

second component, said cryptographic key being used to encrypt data that said first

component sends to said second component (Elliott, [0024]-[0028] and Hocker, col. 5, l.

32 to col. 6, l. 20 and col. 8, ll. 7-43).

17.   As per claim 16, Elliott, Hocker and Tom's Hardware teach all the limitations of

claim 10 as discussed above, where Elliott and Hocker further teach the system

comprising wherein said first component and said second component engage in

communication according to a protocol (e.g. infrared (IR) communication protocol) over

said second light-based communication channel to establish the respective identities

and current presence of said first component and said second component and to

establish that said first component and said second component are within a level of

proximity to each other (Elliott, [0024]-[0028] and Hocker, Fig. 2, ref. 32; Fig. 6; col. 7, ll.

18-28 and col. 8, ll. 7-43).

18.   As per claim 20, Elliott and Hocker teach all the limitations of claim 17 as

discussed above, where Hocker further teaches the computer-readable storage medium

having the method comprising wherein the first component comprises a computing

device enclosed by a case (Hocker, Fig. 1, ref. 14), and wherein the first positional

relationship comprises said second component (e.g. computer peripheral device) being located within a docking port (Hocker, Fig. 6, ref. 83) (Hocker, col. 7, ll. 18-28).

Elliott and Hocker do not expressly teach the computer peripheral (i.e. second component) located with the case.

Tom's Hardware teaches a system and a method comprising: a computer peripheral (e.g. graphics card) located with a case (p. 2-4; p. 6 and p. 14).

It would have been obvious for one of ordinary skill in this art, at the time of invention was made to include Tom's Hardware's casing of the motherboard and peripheral card into Elliott and Hocker's computer system not only because it is well known to one skilled in the art that the computer system is constructed utilizing the motherboard and peripheral card; additionally inclusion of the light based communication channel between the motherboard and peripheral card would ensure the data transferred are secured (Elliott, [0004] and Hocker, col. 5, ll. 44-51 and col. 8, ll. 7-43) to obtain the invention as specified in claim 20.

19.   As per claim 31, Elliott, Hocker and Tom's Hardware teach all the limitations of claim 10 as discussed above, where Elliott and Hocker further teach the system comprising wherein the second communication connection comprises an infrared communication connection (Elliott, [0026] and Hocker, col. 6, ll. 6-20; col. 7, ll. 18-28).

20.   Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over <u>Hocker</u> <u>et al.</u> (US Patent 5,930,368) in view of <u>Elliott et al.</u> (US Pub.: 2004/0184615) as applied to claim 17 above, and further in view of <u>Scott et al.</u> (US Patent 5,311,596).

        <u>Elliott</u> and <u>Hocker</u> teach all the limitations of claim 17 as discussed above, but <u>Elliott</u> and <u>Hocker</u> do not teach the computer-readable storage medium having the method comprising comprising wherein said sending act and said receiving act together comprises a challenge-response protocol, and wherein the method further comprises: determining, based on said sending act and said receiving act that the second component is engaging in a live communication with the first component over said communication channel and that the second component is not being emulated through a replay attack.

        <u>Scott</u> teaches a system and a method comprising utilizing the challenge-response protocol for communication between a terminal (Fig. 1, ref. 110) and a computer (Fig. 1, ref. 150), wherein the authentication of the communication is continuously re-affirmed, by continuous re-affirmation of identity, therefore ensuring the authenticity of the communication, such that that there can no "spoofing" or active wire taping within the communication (col. 1, l. 31 to col. 3, l. 16).

        It would have been obvious to one of ordinary skill in this art, at the time of invention was made to include <u>Scott</u>'s continuously re-affirmed into <u>Elliott</u> and <u>Hocker</u>'s computer-readable storage medium for the benefit of implementing a secure communication link by implementing a continuous re-authentication procedure in a non-

interfering matter by utilizing a side-channel (<u>Scott</u>, col. 2, ll. 41-42) to obtain the

invention as specified in claim 23.

The resulting combination of the references further teaches computer-readable

medium comprising wherein the sending and the receiving of data together include the

challenge-response protocol; and as the communication between the terminal and the

computer is ensured to be continuously authenticated via continuously re-affirmation of

identity, it would then be obvious that the live communication between the first

component and the second component over the side band (e.g. communication

channel) is not being emulated through a reply attack, as there can no "spoofing" or

active wire taping within the communication

III. CLOSING COMMENTS

Conclusion

a. STATUS OF CLAIMS IN THE APPLICATION

The following is a summary of the treatment and status of all claims in the application as recommended by **M.P.E.P. 707.07(i)**:

a(1) CLAIMS REJECTED IN THE APPLICATION

Per the instant office action, claims 1-3, 10, 13-14, 16-20, 23 and 30-32 have received a first action on the merits and are subject of a first action non-final.

b. DIRECTION OF FUTURE CORRESPONDENCES

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chun-Kuan (Mike) Lee whose telephone number is (571) 272-0671. The examiner can normally be reached on 8AM to 5PM.

IMPORTANT NOTE

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alford Kindred can be reached on (571) 272-4037. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

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published applications may be obtained from either Private PAIR or Public PAIR.

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For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

C.K.L.

April 18, 2008   Chun-Kuan (Mike) Lee
                                                       Examiner
                                                       Art Unit 2181

/Alford W. Kindred/

Supervisory Patent Examiner, Art Unit 2163